

On page 21, line 15, please replace "selected" with --computed--.

On page 21, line 16, after "are" please insert --computed or quantized--.

On page 23, line 3, please replace "selecting" with --computing--.

On page 23, line 9, please insert --Those of ordinary skill in the art will readily recognize

that selecting a block type for each image is not intended to be limiting in any way. Instead, the present invention may be limited to processing image blocks that are of a single block type. This eliminates the need to distinguish between different block types, such as the three and four color block types discussed above. Consequently, the block type module 345 in FIG. 3B and reference number 428 in FIG. 4C are optional and are not intended to limit the present invention in any

way--

On page 25, line 14, after "The" please remove --curve--.

On page 36, line 13, after "coupled" please insert --to--.

On page 44, line 14, please replace "off" with --of--.

On page 44, line 17, please replace "unit" with --until--.

In the Claims

Kindly cancel claims 8-12, 14, and 17-20.

Kindly amend claims 1-7, 13, 15-16 and 21-22 as follows.

1. (ONCE AMENDED) Δ [In an image processing system, a] system for encoding an image, comprising:

an image decomposer, coupled to receive an image, for breaking the image into one or more image blocks, each image block having a set of colors;

at least one block encoder for receiving each image block and [, each block encoder coupled to the image decomposer,] for compressing each image block to generate an encoded image block, wherein each block encoder includes a color quantizer for receiving each image block and for generating at least one codeword from which at least one quantized color is derived, the color quantizer having a selection module for computing a set of parameters from the set of colors, the at least one codeword derived from the set of parameters; and

an encoded image composer [, coupled to each block encoder,] for receiving and ordering the encoded image blocks into a data file.

2. (ONCE AMENDED) The system of [for encoding in] claim 1, further comprising a header converter, coupled to the image decomposer and the encoded image composer, for receiving a header from the image, modifying the header, and outputting the modified header with the data file.

3. (ONCE AMENDED) The system of [for encoding in] claim 1, wherein each block encoder comprises:

[a color quantizer, coupled to receive an image block, for generating a first and a second codeword from which at least one quantized color is derived; and]

a bitmap construction module [, coupled to the color quantizer,] for mapping the colors of an image block to one of the at least one quantized colors.

4. (ONCE AMENDED) The system of [for encoding in] claim 3, wherein the color quantizer further comprises:

a block type module, coupled to receive the image block, for selecting a block type for the image block;

[a selection module, coupled to the block type module, for computing the optimal analog curve for a block type;] and

ay a codeword generation module [, coupled to the curve selection module,] for generating the least one [the first codeword and the second] codeword from the set of parameters [analog curve] generated by the selection module.

5. (ONCE AMENDED) A [In an image processing system, a] system for decoding a compressed image, comprising:

an encoded image decomposer, coupled to receive encoded image data file having at least one compressed image block, for breaking the encoded image data file into individual compressed image blocks, each compressed image block having at least one associated codeword, each codeword generated by computing a set of parameters, partitioning the set of parameters into a plurality of partitions, and computing each codeword from one of the partitions;

at least one block decoder [, coupled to the encoded image decomposer,] for decompressing the compressed image blocks into decompressed image blocks; and

an image composer [, coupled to each block decoder,] for ordering the decompressed image blocks in an output file.

6. (ONCE AMENDED) The system of [for decoding in] claim 5, further comprising a header converter, coupled to the encoded image decomposer and the image composer, for

receiving a modified header associated with the encoded image data file, generating an output header, and outputting the output header with the output file.

7. (ONCE AMENDED) The system of [for decoding in] claim 6, wherein each block decoder further comprises:

04 a block type detector [, coupled to the encoded image decomposer,] for selecting a block type for each compressed image block received from the encoded image decomposer;

at least one [a first and a second] decoder unit [, each decoder unit coupled to the block type detector,] for decompressing each compressed image block based on the block type selected by the block type detector; and

an output selector [, coupled to the block type detector and each decoder unit,] for outputting the image block from the decoder unit in response to the block type selected by the block type detector.

8. (CANCELED)

9. (CANCELED)

10. (CANCELED)

11. (CANCELED)

12. (CANCELED)

8/3. (ONCE AMENDED) A [In an image processing system, a] method for generating an encoded image of an original image having a header, comprising:

converting the header to a modified header;

decomposing the original image into image blocks, each image block having a set of colors;

9/5 encoding each image block to generate an encoded image block for each image block by computing a set of codewords from the set of colors, computing a set of computed colors using the set of codewords, and mapping each original color to one of the computed colors or one of the codewords to produce an index for each original color; and

composing the modified header and each encoded image block in a file to generate the encoded image.

14. (CANCELED)

9/5. (ONCE AMENDED) The method of [for generating an encoded image in] claim 8/3 [14], wherein computing [selecting] the set of codewords further comprises:

selecting a [at least one] block type for each image block, wherein the geometric element is computed using the block type;

[computing an optimal analog curve for each selected block type];

partitioning the set of parameters into a plurality of partitions;

[selecting at least one partition along the analog curve for each computed analog curve;]
 computing a [the] set of codewords for each [selected] partition in the plurality of partitions;

computing an error for each computed set of codewords; and
 outputting the block type and set of codewords producing the minimum computed error
 for each computed set of codewords.

16. (ONCE AMENDED) Δ [In an image processing system, a] method for generating an
 original image from an encoded image including a modified header and at least one encoded
 image block, comprising:

receiving the encoded image data;
 decomposing the encoded image into the modified header and the individual encoded
 image blocks;
 reading the modified header to generate an output header;
 decoding each individual encoded image block to generate a decoded image block, each
individual encoded image block having a set of codewords and a set of indices;
calculating at least one quantized color level for the encoded image block using the set of
codewords;
mapping at least one index from the set of indices to one of the calculated quantized color
levels or to a codeword from the set of codewords;

and
 composing the output header and the individual decoded image blocks to generate an
 output file of the original image.

17. (CANCELED)

18. (CANCELED)

19. (CANCELED)

20. (CANCELED)

21. (ONCE AMENDED) A system for processing any identified pixel from an encoded image data file having header information, including at least once codeword computed from a set of parameters, the set of parameters computed from a set of colors within an original image block, and an encoded image block portion including at least one encoded image block, the system comprising:

a block address computation module, coupled to receive each codeword from the header information, for computing an address of an encoded image block having the identified pixel;

a block fetching module, coupled to receive the encoded image block portion and the computed address, for fetching the encoded image block having the identified pixel; and

a block decoder, coupled to receive the fetched encoded image block, for decoding the image block to generate a quantized color associated with the identified pixel.

22. (ONCE AMENDED) A [In an image processing system, a] method for processing any identified pixel of an encoded image data file having a header, including at least once codeword

computed from a set of parameters, the set of parameters computed from a set of colors within an original image block, and an encoded image block portion including at least one encoded image block, the method comprising:

computing an address for an encoded image block having the identified pixel, the address computed from the at least one codeword for the encoded image block;

fetching the encoded image block using the computed address;

computing quantized color levels for the fetched encoded image block; and

selecting a color of the identified pixel from the quantized color levels to output.

Kindly add new claims 23-56 as follows.

23. (NEW) A method of compressing an original image block having a set of original colors, comprising:

computing a set of codewords from the set of original colors;

computing a set of computed colors using the set of codewords; and

mapping each original color to one of the computed colors or one of the codewords to produce an index for each original color.

24. (NEW) The method of claim 23, further including generating an encoded image block by representing the set of original colors as a set of the indices produced by the mapping of each original color to one of the computed colors or one of the codewords.

25. (NEW) The method of claim 23, wherein:
the set of original colors are defined according to a selected color space; and
computing a set of computed colors includes using the set of codewords to select a set of
parameters in the selected color space from which the set of computed colors may be obtained.
26. (NEW) The method of claim 25, wherein the set of parameters includes a plurality of
two colors in the color space.
27. (NEW) The method of claim 25, wherein the set of parameters defines a curve in the
color space.
28. (NEW) The method of claim 25, wherein the set of parameters defines a line in the color
space.
29. (NEW) The method of claim 25, wherein the set of parameters defines a plane in the
color space.
30. (NEW) The method of claim 25 wherein the set of parameters defines a geometric
element in the color space.
31. (NEW) The method of claim 23, wherein mapping further includes associating additional
information with at least one predefined index.

32. (NEW) The method of claim 23, wherein the additional information includes at least a transparency identifier.
33. (NEW) The method of claim 31, wherein the additional information includes at least an alpha value.
34. (NEW) The method of claim 31, wherein the additional information includes at least a color key value.
35. (NEW) The method of claim 23, further including determining a block type associated with the original image block.
36. (NEW) The method of claim 35, further including generating an encoded image block having the indices produced in the mapping of the set of original colors and the set of codewords.
- 37.¹³ (NEW) A method of compressing an original image block having a first set of color points defined within a selected color space, comprising:

fitting a geometric element to the first set of color points so that the geometric element includes a second set of color points having a minimal moment of inertia when fitted to the center of gravity of the first set of color points;

computing a set of codewords from the second set of color points;

computing a set of computed colors using the set of codewords;

mapping each of the first set of color points to one of the computed colors or one of the codewords to produce an index for each of the first set of color points; and

using the indices produced by the mapping each of the first set of color points and the set of codewords to represent the first set of color points.

38. ¹⁴ (NEW) The method of claim ¹³ 37, wherein the set of parameters defines at least two color points in the selected color space.

39. ¹⁵ (NEW) The method of claim ¹³ 37, further including generating an encoded image block having the set of codewords and the indices produced in mapping the first set of color points.

40. ¹⁶ (NEW) The method of claim ¹³ 37, wherein mapping further includes mapping a first set color point to a predefined index, if the first set color point represents an alpha value.

41. ¹⁷ (NEW) The method of claim ¹³ 37, wherein mapping further includes mapping a first set color point to a predefined index, if the first set color point represents a color key value.

42. ¹⁸ (NEW) A method of compressing an original image having a set of pixel parameters, each pixel parameter including a color point parameter defined within an RGB color space, comprising:

dividing the original image into at least one block of pixel parameters;

identifying a block type of the at least one block of pixel parameters;

computing a center of gravity for a set of color point parameters associated with the block of pixel parameters;

fitting a geometric element to the set of color point parameters associated with the block of pixel parameters so that the geometric element includes a subset of color point parameters having a minimal moment of inertia when fitted to the center of gravity;

computing a set of codewords from the subset of color point parameters;

computing a set of computed color point parameters using the set of codewords;

mapping each of the pixel parameters within the block of pixel parameters to one of the computed color point parameters or to one of the codewords to produce an index for each of the pixel parameters within the block of pixel parameters; and

representing the block of pixel parameters by using the set of codewords, and the block type, and each index produced by mapping.

43. ¹⁹ (NEW) The method of claim ¹⁸ 42, wherein mapping further includes mapping a pixel parameter within the block of pixel parameters to a predefined index, if the pixel parameter represents a transparency identifier.

44. ²⁰ (NEW) The method of claim ¹⁸ 42, wherein mapping further includes mapping a pixel parameter within the block of pixel parameters to a predefined index, if the pixel parameter represents an alpha value.

43. ²¹ (NEW) The method of claim ¹⁸ 42, wherein mapping further includes mapping a pixel parameter within the block of pixel parameters to a predefined index, if the pixel parameter represents a color key value.

46. (NEW) A method for decoding an encoded image block having a first set of indices and a set of codewords, comprising:

computing a first computed color using the set of codewords; and

mapping an index within the first set of indices to the first computed color or one of the codewords.

47. (NEW) The method of claim 46, wherein mapping further includes generating a decoded image block by replacing the index with the first computed color or one of the codewords according to the mapping of the index.

48. (NEW) The method of claim 46, wherein computing a first computed color further includes computing a second computed color using the set of codewords.

49. (NEW) The method of claim 48, wherein mapping further includes mapping the index to the second computed color.

50. (NEW) A method for decoding an encoded image block having a set of codewords, a set of indices representing color points associated with the encoded image block, and a block type, comprising:

computing a first computed color using the set of codewords, mapping the set of indices to the first computed color, one of the codewords, and a selected color parameter, if the block type indicates a three color encoded image block; and

computing a first computed color and a second computed color using the set of codewords, mapping the set of indices to the first computed color, the second computed color, and the set of codewords, if the block type indicates a four color encoded image block.

51. (NEW) The method of claim 50, wherein mapping further includes generating a decoded image block by replacing each index within the set of indices with the first computed color, the second computed color, or one of the codewords according to the mapping of the set of indices.

52. (NEW) The method of claim 50, wherein the selected color parameter is an alpha value.

53. (NEW) The method of claim 50, wherein the selected color parameter is a color key value.

54. (NEW) The method of claim 50, wherein the selected color parameter is a transparency value.

55. (NEW) A computer program product that is embodied in a machine readable medium, the computer program product comprising:

a program element for computing a set of codewords from the set of original colors;